

WHAT IS CLAIMED IS:

1 1. A nonaqueous electrolyte secondary battery comprising a
2 positive electrode, a negative electrode comprising a graphite as
3 a negative electrode active material, and a nonaqueous electrolyte
4 comprising at least a saturated cyclic carbonic ester and
5 containing a cyclic carbonic ester having a carbon-carbon double
6 bond such that, when a content of the cyclic carbonic ester having
7 a carbon-carbon double bond is x (g), a content of the graphite in
8 the negative electrode is B (g), a specific surface area of the
9 graphite is A (m^2/g), a size of the crystallite of the graphite in
10 a direction of the c axis is L_c , and a size of the crystallite of
11 the graphite in a direction of the a axis is L_a , a condition
12 expressed by
13 $0.05 \times 10^{-2} \leq x/[A \times B \times 2L_c/(2L_c + L_a)] \leq 3 \times 10^{-2}$
is satisfied.

1 2. The nonaqueous electrolyte secondary battery according to
2 claim 1, wherein the cyclic carbonic ester having a carbon-carbon
3 double bond has a double bond in a ring.

1 3. The nonaqueous electrolyte secondary battery according to

2 claim 1, wherein the cyclic carbonic ester having a carbon-carbon
3 double bond is vinylene carbonate.

1 4. The nonaqueous electrolyte secondary battery according to
2 claim 2, wherein the cyclic carbonic ester having a carbon-carbon
3 double bond is vinylene carbonate.

1 5. The nonaqueous electrolyte secondary battery according to
2 claim 1, wherein d_{002} of the graphite is in a range of 0.335 to
3 0.338 nm as measured by X-ray diffraction analysis.

1 6. The nonaqueous electrolyte secondary battery according to
2 claim 2, wherein d_{002} of the graphite is in a range of 0.335 to
3 0.338 nm as measured by X-ray diffraction analysis.

1 7. The nonaqueous electrolyte secondary battery according to
2 claim 1, wherein I_{110}/I_{002} of the graphite is in a range of 5×10^{-3}
3 to 15×10^{-3} as measured by X-ray diffraction analysis.

1 8. The nonaqueous electrolyte secondary battery according to
2 claim 2, wherein I_{110}/I_{002} of the graphite is in a range of 5×10^{-3}
3 to 15×10^{-3} as measured by X-ray diffraction analysis.

1 9. The nonaqueous electrolyte secondary battery according to
2 claim 1, wherein I_D/I_G of the graphite is in a range of 0.15 to 0.7
3 as measured by Raman spectroscopy.

1 10. The nonaqueous electrolyte secondary battery according to
2 claim 2, wherein I_D/I_G of the graphite is in a range of 0.15 to 0.7
3 as measured by Raman spectroscopy.

1 11. The nonaqueous electrolyte secondary battery according to
2 claim 1, wherein the saturated cyclic carbonic ester in said
3 nonaqueous electrolyte is at least one of ethylene carbonate,
4 propylene carbonate, and butylene carbonate.

1 12. The nonaqueous electrolyte secondary battery according to
2 claim 2, wherein the saturated cyclic carbonic ester in said
3 nonaqueous electrolyte is at least one of ethylene carbonate,
4 propylene carbonate, and butylene carbonate.

1 13. The nonaqueous electrolyte secondary battery according to
2 claim 1, wherein said nonaqueous electrolyte contains chain
3 carbonic ester.

1 14. The nonaqueous electrolyte secondary battery according to
2 claim 2, wherein said nonaqueous electrolyte contains chain
3 carbonic ester.

1 15. The nonaqueous electrolyte secondary battery according to
2 claim 13, wherein said chain carbonic ester is at least one of
3 dimethyl carbonate, ethyl methyl carbonate, diethyl carbonate,
4 methyl propyl carbonate, ethyl propyl carbonate, and methyl
5 isopropyl carbonate.

1 16. The nonaqueous electrolyte secondary battery according to
2 claim 14, wherein said chain carbonic ester is at least one of
3 dimethyl carbonate, ethyl methyl carbonate, diethyl carbonate,
4 methyl propyl carbonate, ethyl propyl carbonate, and methyl
5 isopropyl carbonate.